Journal of University Teaching & Learning Practice

Volume 17 | Issue 3 Article 10

2020

Divergence and the use of digital technology in learning: Undergraduate students' experiences of email feedback in a South African university

Victor Nnadozie
University of KwaZulu-Natal, South Africa, maple10vu@yahoo.com

Clinton Chidiebere Anyanwu
University of KwaZulu-Natal, South Africa

Jabulisile Ngwenya
University of KwaZulu-Natal, South Africa

Fumane Portia Khanare
University of Free State, South Africa

Recommended Citation

Nnadozie, V., Anyanwu, C. C., Ngwenya, J., & Khanare, F. P. (2020). Divergence and the use of digital technology in learning: Undergraduate students' experiences of email feedback in a South African university. *Journal of University Teaching & Learning Practice, 17*(3). https://doi.org/10.14453/jutlp.v17i3.10

Divergence and the use of digital technology in learning: Undergraduate students' experiences of email feedback in a South African university

Abstract

South African universities' use of digital technologies in learning has increased in recent years. Given that social exposure, the context and pedagogic uses of technology influence learning expectations and learner involvement, it is important to understand students' experiences of the use of different technological tools. This article employs activity theory as a lens to explore how students with different levels of prior knowledge experienced the use of e-mail feedback. The feedback involves content discussion and comments on assessment drafts in a modular learning environment of a unit of undergraduate study at one of the country's universities. The students reported mixed experiences of the level of personal control and responsibility for their learning. The article explores the findings' implications for teaching and learning praxis in the university and makes suggestions for further research.

Keywords

activity theory, digital technology, divergence, e-mail feedback, undergraduate students' experiences

Journal of University Teaching & Learning Practice

Volume 17 | Issue 3 Article 10

2020

Divergence and the use of digital technology in learning: Undergraduate students' experiences of email feedback in a South African university

Victor Nnadozie
University of KwaZulu-Natal, South Africa, maple10vu@yahoo.com

Clinton Chidiebere Anyanwu
University of KwaZulu-Natal, South Africa

Jabulisile Ngwenya
University of KwaZulu-Natal, South Africa

Fumane Portia Khanare
University of Free State, South Africa

Recommended Citation

Nnadozie, V., Anyanwu, C. C., Ngwenya, J., & Khanare, F. P. (2020). Divergence and the use of digital technology in learning: Undergraduate students' experiences of email feedback in a South African university. *Journal of University Teaching & Learning Practice, 17*(3). https://ro.uow.edu.au/jutlp/vol17/iss3/10

Divergence and the use of digital technology in learning: Undergraduate students' experiences of email feedback in a South African university

Abstract

South African universities' use of digital technologies in learning has increased in recent years. Given that social exposure, the context and pedagogic uses of technology influence learning expectations and learner involvement, it is important to understand students' experiences of the use of different technological tools. This article employs activity theory as a lens to explore how students with different levels of prior knowledge experienced the use of e-mail feedback. The feedback involves content discussion and comments on assessment drafts in a modular learning environment of a unit of undergraduate study at one of the country's universities. The students reported mixed experiences of the level of personal control and responsibility for their learning. The article explores the findings' implications for teaching and learning praxis in the university and makes suggestions for further research.

Keywords

activity theory, digital technology, divergence, e-mail feedback, undergraduate students' experiences

Introduction

Worldwide, universities use technology-enabled learning platforms to improve the quality of teaching and undergraduate students' learning. The uses, benefits, and challenges of technologies in enhancing learning continue to elicit research interest (Ngandu 2016). Digital technologies promote pedagogical shifts, shaping and advancing not only the ways undergraduate students learn, but also their experiences of learning in university (Cowie & Sakui 2015). However, researchers caution against assumptions of seamless take up of technologies among students (e.g. Henderson, Selwyn & Aston 2017). Contrary to expectations that undergraduate students are 'tech-smart kids', 'digital natives' (Helsper & Eynon 2010) or 'digital residents' (Henderson et al. 2017) that are proficient in the use of digital technology learning tools due to their use of mobile handheld devices for social networking (Jones 2012), several studies report different experiences (Kincey et al. 2019; Kirschner & Bruyckere 2017).

Students' inability to work with learning technologies at university (Colbjørnsen 2015) primarily results from gaps in prior learning (Hanson & Asante 2014). It is thus important that universities assess their students' preparedness for the use of technologies in teaching and learning. Moreover, in many countries, the use of technology in learning also results in wider gaps between what is known and unknown at tertiary institutions (Uzunboylu & Tuncay 2010). While it is important to support undergraduate students to harness these tools, this should be done in ways that involve drawing on their collective capabilities through peer to peer mentoring and in a manner that levels the playing field. Undergraduate students' experiences of and exposure to the use of digital technologies differ based on their schooling and social profile, and institutional dynamics (Warren 2016). Their readiness or lack thereof for adoption of a transformed technologically mediated pedagogy in university is fundamentally a question of context. This is particularly true in South Africa that has adopted a transformative higher education agenda. Moreover, the government is promoting the use of technology at university level (DoE, 2012) and many universities have taken this route in order to keep up with global trends.

However, while students' use of technology supported conversations can be useful sources of peer to peer feedback, effective use of technology for teacher to student feedback requires both training and suitable tools. It involves skills and ability of the student to utilise the kind of tool that is proper to support the intended experience for learning from feedback. Drawing on this background, this article explores students' experiences of student-to-student and teacher-to-student e-mail feedback. This system of feedback that involves use of asynchronous online learning methods for face-to-face students in a Business Management Education (BME) module primarily consists of comments on assessment drafts and content discussion online. In this system, students use internet learning tools including e-mail, group discussion forum and news board and share file attachments as part of blended learning. Learning is facilitated in a modular object-oriented, dynamic learning environment known as Moodle. Moodle is an open source learning management system (LMS) blended with traditional face-to-face teaching (Khoza & Mpungose 2018).

The article begins by describing the South African university context and the policy landscape for the introduction of technologies in higher education. This is followed by an overview of digital technologies and the use of online feedback in teaching and learning. The theoretical framework that underpinned the study is highlighted, as well as the methodology employed. The study's findings are presented and discussed, and the article ends with concluding thoughts and recommendations for further research.

The South African university higher education context and technology-based policy landscape

South Africa's *Education White Paper* (1997) aimed to transform the higher education system and to enable access to previously excluded citizens (Mdepa & Tshiwula 2012). Education policy reforms led to the merging of historically White universities with historically Black ones (Cooper 2015). As exemplified by the study site, today, undergraduate student demographics in most of the country's universities are increasingly divergent (Cooper 2015). However, extending access posed structural, pedagogical, and institutional challenges and created tensions between quality enhancement, growth, and promotion of equity. These challenges include the need to accommodate undergraduate students with varying levels of 'articulation gap', which Scott (2018, p. 10) explains as "the discontinuity between the outcomes of schooling and the demands of higher education." Mass access also led to unmet student expectations, the typical challenges of large class sizes (Gibbs & Jenkins 2014), and demands for curriculum evaluation and transformation, as well as onerous workloads among teaching staff.

The Government's transformation agenda required higher education institutions to increase capacity and to enhance efficiency in teaching and learning. Political pressure to meet enrollment, progression, and degree completion targets added to the challenges. Incremental introduction of technologies in teaching and learning was one of the ways in which universities responded (Jaffer, Ng'ambi & Czerniewicz 2007). Alongside these developments, the South African Council on Higher Education (CHE) advocated for the need to follow the global trend and integrate technology in higher education in order to enable transformation (Czerniewicz, Ravjee & Mlitwa 2006).

Literature

The use of online feedback in university

Feedback is an integral part of the teaching and learning process in university as it provides interactive learning opportunities for undergraduate students to form relationships with peers and faculty (Newlin & Wang 2002). However, feedback is also "a troublesome issue" (Nicol & Thomson 2014, p. 102). The literature highlights several barriers to feedback (Carless & Boud 2018) as well as its more effective features (Nicol 2010). For example, students complain about lecturers' illegible handwriting when they provide written feedback (ElShaer et al. 2019; Higgins, Hartley & Skelton 2002). Furthermore, Hyland and Hyland (2006) question the effectiveness of oral feedback for students for whom English is a second language. Finally, feedback that lacks detail is not helpful (Jones & Blankenship 2014). For their part, lecturers regard written feedback as time-consuming and challenging. Geyskens, Donche and Van Petegem (2012, p. 134) add that "the effectiveness of feedback also depends on the alignment between the feedback content and process of giving feedback… and the individual student (traits)."

Technology is regarded as a useful tool to provide meaningful feedback to the growing numbers of students in universities (Crook et al. 2012; West & Turner 2016). It is argued that online feedback promotes meaningful learning (Gikandi & Morrow 2016) as it incorporates student-to-student and teacher-to-student feedback (Debuse & Lawley 2016). One study found that students in a large undergraduate class that posted and responded in online discussions showed higher levels of confidence and comfort than their peers who did not (Ertmer et al. 2010). In providing feedback, teachers seek to strike a balance between learning support and learner self-regulation (Debuse & Lawley 2016). However, undergraduate students expect that online feedback will be contextual, and will be provided in a supportive, constructive, timely and substantive manner (Awofeso & Bamidele 2016). While the literature notes that feedback generally promotes students' learning, it is also interpreted differently by different people (Adcroft 2011). Hence, it is important to interrogate undergraduate students' aptitude, and their attitudes regarding online feedback in their learning environment taking into consideration their backgrounds and the contextual and process dynamics that underlie their experiences.

Undergraduate students' experiences of e-mail feedback in university

Newlin and Wang (2002, p. 325) state that asynchronous computer-mediated communication like e-mail feedback "facilitates student-to-student interactions, thereby increasing student satisfaction and improving course outcomes." They add that e-mail interaction enables quick clarification of information (Newlin & Wang 2002). Given that e-mail feedback is used by both students and teachers, it promotes dialogic group and individual interactions between lecturer and student and the student and other students (Newlin & Wang 2002). Yu and Yu (2002, p. 121) found that student performance was enhanced with integration of e-mail as a medium for classroom connection in the learning environment. In addition to enabling students to study at their own pace (Flynn, Concannon & Campbell 2006), e-mail enables undergraduate students to connect to the online learning space (Behera 2013). It encourages independent learning and caters for different times and rates of learning (Hanson & Asante 2014). Thus, Gikandi and Morrow (2016) argue that e-mail feedback is a means to promote meaningful learning.

E-mail retains the features of traditional written feedback and is a text-only environment that allows comments that take the audience's needs into account. Its anonymity enables student peers to make critical comments on each other's work without experiencing anxiety (Nicol & Thomson 2014; Gurdado & Shi 2007). It thus encourages students to experiment with new identities, develop a sense of community and explore social acceptance. E-mail feedback is less power-mediated (Hanson & Asante 2014), and constructs students as active learners with control over their learning. However, it also has shortcomings (Xu 1996), which raises the question of whether alternative methods such as individualized online video feedback (Turner & West 2013; Thompson & Lee 2012; Crook et al. 2012) should accompany written feedback. Regardless of whether they opt for video or

text, it is important that universities do not overlook the need to train undergraduate students before the introduction of a technology-mediated feedback system.

Theoretical framework

Hashim and Jones (2007) describe tools or artifacts as instruments, signs, language, machines, and computers which mediate social action. The current study employed activity theory (Kuutti 1996; Nardi 1996) to examine the integration of e-mail feedback as a digital technology learning tool. This theory focuses on the relationships between Subject, Object, and Community (Kuutti 1996). Subject refers to those who make use of the tool (Lim & Hang 2003; Kaptelinin 1996), in this case the undergraduate students using e-mail feedback. Objects are the institutional objectives for integrating e-mail feedback in teaching and learning (Kuutti 1996) and the resultant undergraduate students' experiences. Community refers to faculty, staff, and the undergraduate students' involvement (Kaptelinin & Nardi 2006) in teaching and learning practices, including pedagogical ones, in the e-mail feedback process.

Kuutti (1996) explains that tools mediate the relationship between subject and object, while rules mediate that between subject and community. Similarly, the division of labor mediates the relationship between object and community (Kaptelinin & Nardi 2006). Taken together, these refer to negotiation of explicit or implicit ways of achieving the expected transformation in the undergraduate students' use of e-mail feedback in the learning activity community. Outcomes imply expected improvement in their learning experiences in giving and receiving feedback in the BME module. Rules cover procedures and policies that intermediate the institution and community. Accordingly, e-mail feedback is a learning activity by human agents – the undergraduate students (subject) - that is proposed as a solution to a problem or purpose (object) using tools (artefacts) in online collaboration with others (community). The organization of the activity is controlled by cultural factors including conventions (rules) (Kaptelinin 1996). The use of activity theory to understand e-mail feedback as a learning activity therefore involved examining how the use of objects, with procedures and rules to inter-mediate the social actions of the subjects, and in the community, predicate desired outcomes.

Use of e-mail feedback in the BME module

E-mail feedback takes the form of written feedback to individual students via the Subject Moodle and the student account. This requires that students are able to sign into Moodle, and navigate the applications, including viewing their messages, posted content and other items on the module. It is thus assumed that the students know how to use the learning tools, understand the procedures and follow the rules for sharing and can post and receive general comments on their assessment drafts in the online group, engage in group discussions on class activities, and respond to comments from, as well as engage in other online interactions with their lecturers. Such a feedback system enables the increasing number of undergraduate students taking the module to easily connect to their learning. However, prior to the introduction of e-mail feedback, students received handwritten feedback in the form of comments and marks. This was followed by verbal feedback in the form of one-on-one conversations with lecturers, which gave the student the opportunity to interact, seek clarifications on the feedback and discuss expectations.

Besides e-mail feedback, the LMS platform also provides students with information as they can view announcements, assignments, quiz and test requirements and dates, and consult with lecturers. They can also view examination results, their registration status, and the timetable and venues as well as receive e-mail alerts regarding posts or new information on the site. Site support for use of the LMS, including e-mail is provided in the university's computer pools by information and communication services staff. However, students have to sign-up for this or seek help. Such support practice is modelled on the assumption that the undergraduate student is digitally active and savvy which, as noted earlier, is not always the case.

Method

This study employed a qualitative approach (Cohen, Manion & Morrison 2011) to understand the participants' lived experiences of the use of e-mail feedback (Creswell & Poth 2017). It focused on their perceptions, beliefs, attitudes, and behaviors in relation to their experiences. The participants were fourth-year undergraduate students taking BME, which is one of the flagship final year modules that integrated e-mail feedback using Moodle. A total of 150 students registered for the module, and the 15 participants were purposively selected (Flick 2014) from this cohort. The researchers invited participants in the study using student backgrounds and prior digital technology exposure as selection criteria. Snowball sampling (Cohen et al. 2011) was used to select the participants at four different levels: 1) little or no prior knowledge of using digital technology tools, 2) some basic

knowledge of use of the digital technology tools but lack understanding of how to navigate the Moodle platform, 3) limited understanding of the Moodle platform but not yet conversant with the e-mail feedback system, and 4) a smattering of knowledge of the Moodle platform and has started using the e-mail feedback system. The first four students with these different levels of experience were identified by observing them at the undergraduate students' computer pools where they were making an attempt to engage in online activity in the module. Each identified at least two peers with the same level of experience. All the participants accepted the voluntary invitations to participate in the study. This technique enabled the researchers to select a suitable and manageable sample (Creswell & Poth 2017). Semi-structured individual interviews and focus group discussions as well as observation (Cohen et al. 2011) were used to collect data. Three focus group discussions were held with five students in each group. The groups included people with the four levels of experience and each discussion lasted 45 minutes. Individual interviews (approximately 45 minutes) were also conducted with five participants with diverse digital technology experience. They provided the opportunity for more in-depth exploration of salient points that were not made explicit in the Focus group discussions (Cohen et al. 2011). Both the interviews and the focus group discussions took place during students' free periods at venues they selected. Participation in the study was by consent and was entirely voluntary (Cohen et al. 2011). Braun and Clarke's (2006) phases of thematic analysis provide the framework to guide analysis. Two broad themes emerged, namely, unhelpful, and helpful experiences of the use of e-mail feedback.

Findings

This section discusses the study's findings under the themes *unhelpful* and *helpful* experiences of the use of e-mail feedback. The participants' narratives illustrate the variations and complexity in undergraduate students' experiences of the use of e-mail feedback, showing the divergence in their use of digital technology in learning. Many of the participants pointed to unhelpful experiences of the e-mail feedback system because they lacked basic computer skills and had little or no prior knowledge of the use of the e-mail feedback tools. These include: lack of basic computer skills, displacement of one-on-one contact, and not sharing. Others that had some knowledge of how to use the system described it as unhelpful because it replaced personal communication and/or did not offer the confidentiality that one-on-one contact with their lecturers provided. Student participants often pointed to helpful experiences too, including providing a useful link, and access to vast information. Across the two data collection methods, students were largely consistent: focus group (F) and interviews (I).

Lack of basic computer skills

The responses indicate that the students that struggled with e-mail feedback lacked basic computer skills and did not clearly understand how the system worked. Students described this new method as frustrating.

> *This way of providing feedback is a new method. Many students are not aware of [how to use] this system; and they experience frustration in checking feedback from their lecturers online…* (F).

> *…my first time using it [computers] was here on campus* (F),

> *It is a new way of giving us feedback, [but] I find it hard to check or send e-mail. I find it quite complex … because [I] am not that familiar with using … [a] computer* (I).

Students illustrated the stress and frustration generated in part because they did not understand the new method, and many were not familiar with the digital technology learning tools that support it.

> *I do not know how to operate computers, and this [meant that I did not check] my e-mail feedback over a long period...* (F)

> *Because I do not know how to use computers, … I cannot log into the computer and check my e-mail...* (I).

Some participants said that they were not exposed to computers at school. Given this finding, students were asked if they made use of the ICT support provided at the computer pools. The responses were mixed. While many claimed that they were not aware of this service, others noted that:

> *…they don't tell us we can help, all they do here all day is to ask you, show me your ID [student card], and they will sit down and chat [among themselves] …* (F)

> *... I feel ... shy to ask these guys for help; they don't look like they care, and here in Uni [on campus], no one asks you; what can I help you with? They think everyone knows computers..., but not all of us can use it...* (F)

Without prior training in the use of the e-mail feedback system or support in using it, students struggled to use the system. It was observed that some received assistance from their peers. Of concern is that students that struggled to access the system missed out on valuable aspects of their learning in the BME module. They also would have missed other information on the Moodle platform relating to their studies. Similarly, Nash (2009) found that some students lack basic skills to use computers and other digital learning tools to access e-mail feedback.

Displacement of one-on-one contact, context and the need for an immediate response

Some participants commented that e-mail feedback is not 'direct' and said that they preferred verbal feedback that offers an opportunity for personal communication with their lecturers.

> *...I prefer one-on-one contact to any other means of providing feedback; it gives me [an] opportunity to ask questions and receive direct feedback immediately* (F).

It was also noted that verbal interaction makes for richer communication:

> *...at least I will meet my lecturer directly, and I will see the facial expressions...* (F)

These responses suggest that students value both verbal and non-verbal messages, cues, and information that one-on-one interaction provides. Some also noted that direct feedback allowed them to ask questions and receive immediate answers. In contrast:

> *...sometimes, when I receive e-mail feedback from my lecturers it [leaves] me with many questions and in doubt. And sometimes I end up interpreting the information wrongly* (F).

Accustomed to verbal feedback, the students struggled to understand the feedback they received by way of e-mail. These and similar responses in the individual interviews portray e-mail feedback as lacking opportunities for spontaneity and for the student to exert direct agency:

> *... but e-mail feedback cannot provide the immediate answers. Like you and me, right now, I can answer your question, you can question me, and we can talk one-on-one and feel the closeness in our verbal conversation, which make me understand the things we are talking about better* (I).

Two participants remarked that e-mail feedback leads to ambiguity:

> *When I receive [e-mail] feedback, I usually doubt and ask why the feedback is like this, because I cannot understand the content properly and there is no one to explain to me* (I).

> *...sometimes I cannot understand why it [e-mail feedback] is ... the way it is, and nobody can give me the answers that I want immediately* (I).

Like other written feedback, e-mail feedback sometimes confuses students and leaves them feeling flustered because there is a lack of rapport and sense of support (Thompson & Lee 2012). Winstone et al. (2017, p. 2030) comment that "for feedback to be implemented, it needs first to be understood." The students stated that they could not obtain immediate answers to their questions or seek clarity on the feedback. This can result in incorrect interpretations that inhibit learning. Carless (2013) observes that interactive feedback calls for sharing of interpretations, negotiation of meanings and clarification of feedback expectations. Conversely, Yu and Yu (2002) argue that direct interaction with lecturers in verbal feedback reinforces power imbalances. Given that students feel that lecturers dominate the feedback process; one-on-one verbal feedback may not permit the more democratic interaction inherent in e-mail feedback.

Not sharing: keeping feedback personal

The participants' responses also suggest that they felt that online learning interactions are impersonal, which renders the feedback received impersonal. Students noted that feedback is a personal issue that should not be

shared or discussed with a third party. Some added that doing so exposes them to ridicule among their peers in the module:

> *I want to be able to ask my personal questions I need to ask regarding the feedback, but no, not in that group thing…* (F).

> *…I don't share my feedback to avoid being teased…, especially when the feedback is not good…* (F).

> *Even when I do not understand the content of the e-mail feedback, I usually keep it … to myself* (I).

According to Warschauer (2010), one of the important features of e-mail is that it serves as a channel for mass communication, enabling users to send and share information and receive feedback. However, the earlier responses suggests that sharing feedback depends on how the student feels about it:

> *It is compulsory to have a student e-mail account to get my feedback, but I feel shy to show or discuss the feedback I received from my lecturer with anyone…* (F).

A student noted that, while they supported compulsory use of e-mail, they were unsure if that meant that they should share their feedback:

> *Communication between the students, lecturers and the school [is] important, and to maintain good communication I think it will be through e-mail. I think it was the reason, in the first place, it was made compulsory for every student to have student e-mail. But I don't know if that also means I must share my feedback with everyone…* (I).

While the participants agreed that the use of e-mail enhanced pedagogical efficiency and networking in the module, they did not all agree that it has improved the quality of their learning experiences:

> *…yes, you can say that, but the fact is sometimes, I feel like this feedback is not for me. It seems that the lecturer is communicating to us as a class…[not] to my own worries regarding the assessment…* (F).

These remarks point to a mismatch between the undergraduate students' expectations of feedback and the feedback received using the e-mail method. In addition, the responses show that the students disapproved of e-mail feedback because it displaced what they were used to, that is, one-on-one verbal feedback from their lecturers. Their frustration with the new method was due to their inability to access the content, personalize the feedback, and seek and receive immediate clarity. These students' various expressions of inability to resourcefully use the digital technology tools that mediate this method of feedback in the BME module reflect their diverse backgrounds and levels of prior exposure. Such inabilities led to the e-mail feedback being described as an unhelpful learning experience.

Useful link

Four of the participants asserted that, being in online contact with their lecturers and other students via e-mail enabled easy access to everyone in the module across all the university's campuses. As with the following comment, it also enabled contact with guest lecturers and those from other campuses:

> *Sometimes … lecturers are not based on our campus; they are visiting lecturers from the other campuses or guests from other universities. E-mail enables us to communicate with them …instead of waiting for the day they will be on campus.* (F).

Given that online contact is not bound by a specific location and can be accessed anywhere at any time (Hanson & Asante 2014), this method was described as a 'useful link' that created space for interaction and engagement with others. A student that was interviewed agreed that e-mail feedback offers an easy way for students to link with their lecturers and peers:

> *…the e-mail makes for easier contact for both lecturers and students; it's useful because it opens ways for lecturers and students to link easily via Moodle…, all … [that it] needs is [the] internet no matter where you are* (I).

It is interesting that the students that found the e-mail feedback system useful referred to easier contact with lecturers and other students using the Moodle LMS and not necessarily the feedback received. They were among the few participants with comparatively advanced competency and prior knowledge of the use of digital technologies in their learning. They were thus able to communicate effectively using the LMS. Likewise, they had the proficiency to navigate Moodle and were able to use its blended learning environment to access a vast body of material and information.

Access to vast information

One student commented that e-mail feedback enables a single message with a vast amount of information to be sent simultaneously to all students enrolled in the module, saving the lecturer time:

> *It is good because, if you look at our numbers in the class, it is not always easy for the lecturer to reach [out] to each one of us one-on-one as and when needed. But using the e-mail, the lecturer sends feedback to everyone at the same time without having to meet us face-to-face* (I).

This view was also expressed by multiple students, where some noted that using e-mail for feedback removes disruptions and the time spent waiting for an appointment and personal feedback. Flynn et al. (2006) state that, e-mail is a convenient way to send large amounts of information to support undergraduate students' learning. Iron (2008) also comments that e-mail speeds up the sending and receiving of messages. These claims were consistent across multiple participants. For example,

> *...e-mail feedback is easily accessible and convenient… you can get your feedback … anytime and anywhere… and immediately reply if there is any need…* (F).

The participants added that e-mail feedback makes it possible to receive prompts and notifications when new information, resources and study material are sent by their lecturer or other students:

> *… you can see the advantages because when the lecturers post notes or information on the site, we receive [e-mail] notification…* (F).

> *It is important… that I'm able to access other material that I use when I study. I … download lots of material that the lecturer sends or … other material like charts, graphs, video, and audio… shared in the group* (F).

E-mail feedback thus offers flexibility and saves time, whilst enabling broader communication between the students and the lecturer. The students noted that it improved access and learning interactions. These findings agree with Hassini's (2006) contention that e-mail feedback benefits students as they can keep up with the course. In summary, a few of the study participants stated that e-mail feedback enhanced their access to resources and information in the BME module, while others deemed it an unhelpful learning experience.

Discussion and conclusions

This study's findings suggest that the undergraduate students had mixed experiences using e-mail feedback in their learning. Again, this reflects the mixed demographic profiles of these students. On one end of the spectrum, some participants found e-mail feedback unhelpful due to their lack of prior exposure to the use of digital technologies that support this module management application. In addition, they lacked understanding of how the technologies work including, for some, knowledge of basic computer operations. Such students were left feeling helpless and disempowered. They expressed preference for verbal one-on-one feedback in person, which they regarded as supportive of their learning. On the other end of the spectrum were students that experienced the e-mail feedback system as helpful. Their prior knowledge and competencies enabled them to benefit from the new system. These students felt that it enabled access and active control and responsibility for their learning.

Activity theory assumes an expected outcome of every activity (Kuutti 1996). The use of e-mail feedback as a learning activity in the BME module mainly centered on the object of the learning activity, which involved the expectation that it would transform the way feedback is provided and experienced by an increasing number of students. In addition to other initiatives, the aim was to improve students' access to or active involvement in their learning. However, Bodker (1991) considers learning activity in terms of social factors and interaction between agents (in this case, the undergraduate students) and their environments. Key in this interaction is the role that a

tool plays in mediating the learning activity. Hence, Kaptelnini (1996) argues that the learning experience is determined by the structural properties of tools; the form and material, and knowledge of their effective use in learning. Learning tools and their usage are important in the learning activity because they shape the way the learner relates to the learning environment (Bodker 1991).

Lack of competencies to use the learning tools that support the new feedback method influenced and was influenced by the way the students related to the modular learning environment in BME. Their frustration at their inability to use the e-mail feedback resulted in and, in turn, intensified the prejudices they showed towards the mediating tools. Accustomed to the more traditional method of face-to-face feedback provided in person by the lecturer, both their attitudinal predispositions and reluctance to use the new method were push factors that do not seem to have been adequately considered before the introduction of the system. For example, training should have been provided on how the LMS works and its usages.

The use of digital technologies in learning is not free from the power constructs that shape perceptions of technology. It is important to recognize the intersectionality of infrastructure, technology, and cultural preparedness for the adoption of digital technologies in mediating learning among undergraduate students in this context. Weaver, Spatt and Sid Nair (2008) argue that adoption of technology in learning is dependent on and influenced by the type of institution and its policies that impact on teaching and learning practices and culture. It is also dependent on students' willingness to shift from traditional to technology mediated learning (Weaver et al. 2008). In the current study, the inhibition the students experienced was partly attributable to the dissonance in the object-subject relationship that was poorly mediated because they were unable to use the learning tools or were ineffectual in using them in the learning activity. It is known that student dissatisfaction with an e-mail feedback method can significantly inhibit their learning experience and impede their academic progress. Thus, despite contending arguments on learning threshold (Myer & Land, 2006), it is instructive in this context to take into consideration Taylor and Baker's (2019) caution against reliance on practices that push students out of their comfort zones based on the assumption that discomfort is necessary to facilitate learning.

Conversely, the study's findings show that, for students that were conversant with the tools, e-mail feedback enhanced accessibility in their learning. Here, the object-subject relationship was harmonious. This is evident in their claims that e-mail feedback led to improved communication between them and their lecturers, and interactions with others. Accordingly, Lim and Hang (2003, p. 51) assert that "the tools through which the subject interacts with the world are dependent on his/her object in the activity system, and this shapes his/her interpretation of the tools."

E-mail feedback in learning consists of joint and combined activity involving a learning active community. The division of labor in the learning activity using e-mail feedback was designed to expedite provision of feedback. In a learning active community, rules guide learning activity (Kuutti 1996; Kaptelinin 1996). The rules in this case include the procedures and policies of the institution and the community involved in the learning activity. This means that the rules must be properly applied if the learning objective is to be met, in this case, the transformative objective of the use of the e-mail feedback method. The feedback process in the learning activity implied adherence to the rules and procedures for using the learning tool within the learning community. This presupposes that this community shares the skills required to use the tools, which students that lack basic computer skills do not have. As a result, these students tended to experience self-excluding notions of e-mail feedback. Their reservations parallel and externalize the exclusionary strictures the new method of feedback's division of labor imposed. Because no provision was made to promote shared competencies among students, which are necessary for even access in a learning active community, the students reported divergent experiences in learning.

Limitations of the study

While learning is an interactional activity, students are at its centre. Exploring undergraduate students' experiences of their learning implies a robust discussion that could be strengthened by inclusion of their teachers' voices. This limitation was mitigated by extended field observation by the researchers. Similarly, the study could have benefitted from a multiple case study involving modules in two or more universities and using participants in first, second and third years of study. However, the study was designed to serve a single purpose, to investigate BME as a flagship module that introduced e-mail feedback. It is expected that its findings will stimulate scaled-up research and further debate on the use of digital technologies in learning in university. For example, a similar study with a focus on the e-mail feedback process and participants who are all competent in using the LMS may provide more nuanced reflection.

Concluding thoughts

The use of e-mail feedback improved some undergraduate students' experiences in terms of access and involvement in the module. However, many also recounted unhelpful experiences. They were unable to effectively access the feedback content because they lacked knowledge and skills to engage in the process and utilise the procedures in the learning activity. Hew and Brush (2007) suggest that integrating technology in learning calls for more than the mere presence of computers or availability of learning technology tools. They argue that it implies provision of the proper amount and type of technology, and training that enables teachers and students to use it. Allah (2008) highlights that both *technical* and *practical* challenges are experienced during the process of providing e-mail feedback, which result in students who are not familiar with computers finding it time consuming and becoming frustrated. The current study's findings show that students experience anxiety and feel excluded from e-mail feedback because of their lack of computer skills, pointing to gaps in their prior learning experiences (Hanson & Asante 2014).

Taken together, the findings imply the need to interrogate the tendency to assume that undergraduate students are savvy users of technology. Indeed, a digital divide (Warschauer 2010) exists among students that is often not taken into account by higher education institutions and results in unequal pedagogical access. If not appropriately addressed, it will reinforce and deepen imbedded inequalities in universities. To ensure equitable outcomes, all undergraduate students should receive the requisite training and support to use digital technology in their learning. For digital technology to be effectively integrated in teaching and learning it should be adaptive, inclusive, interactive, and measured. Thus, in addition to support staff, universities could consider formalizing peer-to-peer mentoring support for students. This would scaffold their learning of the skills required to utilise digital technology learning tools and help to dispel negative perceptions of the e-mail feedback system. Students that lack the skills and experience to use the feedback method and apply the digital technology tools that support it, would learn from their more experienced and knowledgeable peers in the module. We recommend further research on the role and impact of the use of digital technology on undergraduate students' learning experiences in this and similar university contexts.

References

Adcroft, A 2011, 'The mythology of feedback'. *Higher Education Research & Development*, vol. 30, no. 4, pp. 405-419.

Allah, LF 2008, 'Electronic Feedback: Is It Beneficial for Second Language Writers?', *Teaching English with Technology*, vol. 8, no. 3, n.p.

Awofeso, N & Bamidele, M 2016, 'Efficient instructor feedback: Perceptions of online UAE undergraduate and postgraduate public health learners'. In *International Conference on e-Learning* (p. 1). Academic Conferences International Limited.

Behera, SK 2013, 'E-and M-Learning: A comparative study', *International Journal on New Trends in Education and Their Implications*, vol. 4, no. 3, pp. 65-78.

Bodker, S 1991, 'Activity Theory as a Challenge to Systems Design', in *Information Systems Research: Contemporary Approaches and Emergent Traditions*, HE, Nissen, Klein, HK, & Hirscheim R (Ed.), Amsterdam: Elsevier Science.

Braun, V & Clarke, V 2006, 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, vol. 3, no. 2, pp. 77-101.

Carless, D 2013, 'Sustainable feedback and the development of student self-evaluative capacities', *Reconceptualising feedback in higher education: Developing dialogue with students*, pp. 113-122.

Carless, D & Boud, D 2018, 'The development of student feedback literacy: enabling uptake of feedback', *Assessment & Evaluation in Higher Education*, vol. 43, no.8, pp. 1315-1325.

Cohen, L, Manion, L & Morrison, K 2011, 'Planning educational research', *Research methods in education*, New York, Routledge Editors.

Colbjørnsen, T 2015, 'Digital divergence: analysing strategy, interpretation and controversy in the case of the introduction of an ebook reader technology', *Information, Communication & Society*, vol. 18, no. 1, pp. 32-47.

Cooper, D 2015, 'Social Justice and South African University Student Enrolment Data by "Race", 1998–2012: From "Skewed Revolution" to "Stalled Revolution"', *Higher Education Quarterly*, vol. 69, no. 3, pp. 237-262.

Cowie, N & Sakui, K 2015, 'Assessment and e-learning: Current issues and future trends', *JALT CALL Journal*, vol. 11, no. 3, pp. 271-281.

Creswell, JW & Poth, CN 2017, *Qualitative inquiry and research design: Choosing among five approaches*, New York, NY: SAGE Publications.

Crook, A, Mauchline, A, Maw, S, Lawson, C, Drinkwater, R, Lundqvist, K ... & Park, J 2012, The use of video technology for providing feedback to students: Can it enhance the feedback experience for staff and students? *Computers & Education*, vol. 58, no. 1, pp. 386-396.

Debuse, JC & Lawley, M 2016, 'Benefits and drawbacks of computer-based assessment and feedback systems: Student and educator perspectives', *British Journal of Educational Technology*, vol. 47, no. 2, pp. 294-301.

ElShaer, A, Casanova, D, Freestone, NS & Calabrese, G 2019, 'Students' perceptions of the value of electronic feedback—Does disciplinary background really matter?' *British Journal of Educational Technology*, vol. 51, no. 2, pp. 590-606.

Ertmer, PA, Richardson, JC, Lehman, JD, Newby, TJ, Cheng, X, Mong, C & Sadaf, A 2010, 'Peer feedback in a large undergraduate blended course: Perceptions of value and learning', *Journal of Educational Computing Research*, vol. 43, no. 1, pp. 67-88.

Flynn, A, Concannon, F & Campbell, M 2006, 'An evaluation of undergraduate students' online assessment performances', *Advanced Technology for Learning*, vol. 3, no. 1, pp. 15-21.

Geyskens, J, Donche, V & Van Petegem, P 2012, 'Towards effective feedback in higher education: bridging theory and practice', *Reflecting education*, vol. 8, no. 1, pp. 132-147.

Gibbs, G & Jenkins, A 2014, *Teaching large classes in higher education: How to maintain quality with reduced resources*, Abingdon, UK: Routledge.

Gikandi, JW & Morrow, D 2016, 'Designing and implementing peer formative feedback within online learning environments', *Technology, Pedagogy and Education*, vol. 25, no. 2, pp. 153-170.

Hanson, R & Asante, JN 2014, 'An exploration of experiences in using the hybrid MOODLE approach in the delivery and learning situations at the University of Education, Winneba, Ghana', *Journal of Education and Practice*, vol. 5, no. 12, pp. 18-23.

Hashim, NH & Jones, ML 2007, 'Activity Theory: A framework for qualitative analysis', In *4th International Qualitative Research Convention*.

Helsper, EJ & Eynon, R 2010, 'Digital natives: where is the evidence?', *British Educational Research Journal*, vol. 36, no. 3, pp. 503-520.

Henderson, M, Selwyn, N & Aston, R 2017, 'What works and why? Student perceptions of "useful" digital technology in university teaching and learning', *Studies in Higher Education*, vol. 42, no. 8, pp. 1567 1579.

Higgins, R, Hartley, P & Skelton, A 2002, 'The conscientious consumer: Reconsidering the role of assessment feedback in student learning', *Studies in Higher Education*, vol. 27, no.1, pp. 53-64.

Hyland, K & Hyland, F 2006, 'Feedback on second language students' writing', *Language Teaching*, vol. 39, no. 2, pp. 83-101.

Jaffer, S, Ng'ambi, D & Czerniewicz, L 2007, 'The role of ICTs in higher education in South Africa: One strategy for addressing teaching and learning challenges', *International Journal of Education and Development Using ICT*, vol. 3, no. 4, pp. 131-142.

Jones, C 2012, 'Networked learning, stepping beyond the Net generation and digital natives', in *Exploring the theory, pedagogy and practice of networked learning*, Springer, New York, pp. 27-41.

Jones, IS & Blankenship, D 2014, 'What Do You Mean You Never Got Any Feedback?', *Research in Higher Education Journal*, vol. 24, pp. 1-9.

Kaptelinin, V & Nardi, BA 2006, *Acting with technology: Activity theory and interaction design*, MIT Press.

Kaptelinin, V 1996, 'Activity theory: Implications for human-computer interaction', *Context and consciousness: Activity theory and human-computer interaction*, vol. 1, pp. 103-116.

Khoza, SB & Mpungose, CB 2018, Use of the Moodle Curriculum by Lecturers at a South African University. In *ICEL 2018 13th International Conference on e-Learning* (p. 171). Academic Conferences and Publishing Limited.

Kincey, SD, Farmer, ED, Wiltsher, CY, McKenzie, D, & Mbiza, ST 2019, 'From Chalkboard to Digital Media: The Evolution of Technology and Its Relationship to Minority Students' Learning Experiences', *Journal of Faculty Development*, vol. 33, no. 1, pp. 65-76.

Kirschner, PA, & De Bruyckere, P 2017, 'The myths of the digital native and the multitasker', *Teaching and Teacher Education*, vol. 67, pp. 135-142.

Kuutti, K 1996, 'Activity theory as a potential framework for human-computer interaction research', *Context and consciousness: Activity theory and human-computer interaction*, 1744.

Czerniewicz, L, Ravjee, N, & Mlitwa, N 2006, *Information and communication technologies (ICTs) and South African higher education: Mapping the landscape*, Pretoria: Council for Higher Education.

Lim, CP & Hang, D 2003, 'An activity theory approach to research of ICT integration in Singapore schools', *Computers & Education*, vol. 4, no. 1, pp. 49-63.

Mdepa, W & Tshiwula, L 2012, 'Student diversity in South African higher education', *Widening Participation and Lifelong Learning*, vol. 13, no. 1, pp. 19-33.

Meyer, JHF & Land, R 2006, 'Threshold concepts and troublesome knowledge: Issues of liminality', in *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge,* JHF, Meyer & R, Land (Eds.), London: Routledge, pp. 19-32.

Mostert, M & Quinn, L 2009, 'Using ICTs in teaching and learning: Reflections on professional development of academic staff', *International Journal of Education and Development using ICT,* vol. 5, no. 5, pp. 72-84.

Mtshali, MA, Maistry, SM & Govender, DW 2015, 'Online chats: A strategy to enhance learning in large classes', *South African Journal of Education,* vol. 35, no. 4, pp. 1-9.

Nardi, BA 1996, 'Activity theory and human-computer interaction', *Context and Consciousness: Activity Theory and Human-Computer Interaction,* vol. 436, pp. 7-16.

Nash, J 2009, 'Computer skills of first-year students at a South African university', in *Proceedings of the 2009 Annual Conference of the Southern African Computer Lecturers' Association,* ACM, pp. 88-92.

Newlin, MH & Wang, AY 2002, 'Integrating technology and pedagogy: Web instruction and seven principles of undergraduate education', *Teaching of Psychology,* vol. 29, no. 4, pp. 325-330.

Ngandu, C 2016, *Challenges and opportunities of using web-based Information Services in higher education: Students and lecturers perspective of Moodle* (Doctoral dissertation, Cardiff Metropolitan University).

Nicol, D, Thomson, A & Breslin, C 2014, 'Rethinking feedback practices in higher education: a peer review perspective', *Assessment & Evaluation in Higher Education,* vol. 39, no. 1, pp. 102-122.

Nicol, DJ 2010 'From monologue to dialogue: improving written feedback processes in mass higher education', *Assessment and Evaluation in Higher Education,* vol. 35, no. 5, pp. 501-517.

Scott, I, 2007, 'Designing the South African Higher Education system for student success', *Journal of Student Affairs in South Africa*, vol. 6, no. 1, pp. 1-17.

Taylor, KB & Baker, AR 2019, 'Examining the Role of Discomfort in Collegiate Learning and Development', *Journal of College Student Development,* vol. 60, no. 2, pp. 173-188.

Thompson, R & Lee, MJ 2012, 'Talking with students through screencasting: Experimentations with video feedback to improve student learning', *Journal of Interactive Technology and Pedagogy,* vol. 1, no. 1, pp. 1-16.

Turner, W & West, J 2013, 'Assessment for "digital first language" speakers: Online video assessment and feedback in higher education. *International Journal of Teaching and Learning in Higher Education*, vol. 25, no. 3, pp. 288-296.

Uzunboylu, H & Tuncay, N 2010, 'Divergence of Digital World of Teachers', *Educational Technology & Society*, vol. 13, no. 1, pp. 186-194.

Warschauer, M 2010, 'Digital divide'. *Encyclopedia of library and information sciences*, vol. 1, no 1, pp. 1551-1556.

Weaver, D, Spratt, C & Nair, CS 2008, 'Academic and student use of a learning management system: Implications for quality', *Australasian Journal of Educational Technology*, vol. 24, no. 1, pp. 30-41.

West, J & Turner, W 2016, 'Enhancing the assessment experience: improving student perceptions, engagement and understanding using online video feedback', *Innovations in Education and Teaching International,* vol. 53, no. 4, pp. 400-410.

Xu, G L 1996, Advantages and Disadvantages of Using E-Mail as Instructional Aid: Some Random Thoughts. Paper contributed to the *1st Teaching in the Community Colleges Online Conference*, 'Innovative Instructional Practices,' Kapiolani Community College, April 2-4, 1996.

Yu, FY & Yu, HJJ 2002, 'Incorporating e-mail into the learning process: its impact on student academic achievement and attitudes', *Computers & Education*, vol. 38, no. 1-3, pp. 117-1.